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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,777	08/07/2003	Akiyoshi Mikami	50024-015	1705

7590 07/24/2008

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EXAMINER	
THOMPSON, CAMIE S	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
07/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/635,777	MIKAMI, AKIYOSHI	
	Examiner	Art Unit	
	Camie S. Thompson	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE filed 7/14/08*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13,14 and 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13,14 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/14/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 14, 2008 has been entered.

2. Applicant's amendment and accompanying remarks filed July 14, 2008 are acknowledged.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 22 is rendered indefinite because it depends from cancelled claim 21.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 13, 14 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 64-027194 in view of Okajima et al., U.S. Patent Number 5,700,591 and in further view of *Red Electroluminescence from MgS:Eu and $Mg_{1-x}Ca_{xS:Eu}$ Thin Film Phosphor prepared by RF-sputtering Technique, Akiyoshi Mikami, Ishikawa, Japan, pp. 1-3.*

The Japanese reference discloses a thin film EL element comprising a transparent electrode; a glass substrate; a first insulation layer; a light emitting layer comprising a composition of $Mg_{1-x}Ca_xS$ wherein the value of x is $0<x\leq0.9$; a second insulating layer; and an aluminum electrode as required by present claim 13 (see abstract). The Japanese reference does not disclose the material of the first insulation. Okajima discloses a light emitting thin film element comprising a light emitting layer sandwiched in between two barrier layers wherein the light emitting layer can comprise an alkaline earth sulfide such as calcium magnesium sulfide (see column 1, line 65-column 2, line 4). The Japanese reference also discloses that the barrier layers can be magnesium sulfide as per instant claim 1 (see column 5, lines 5-34). Neither the Japanese reference nor the Okajima does not disclose that the composition of Eu to Mg is not larger than 0.1. However, this is an optimizable feature. The concentration of the activator affects the luminescence of the light emitting layer. Discovery of optimum values of a result effect variable Involves only routine skill in the art *in re Boesch, 617, F.2d* 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art to have a composition ratio of Eu to Mg being not larger than 0.1 in order to have a device that his higher luminescence. Additionally, neither the Japanese reference or the Okajima reference discloses that the magnesium sulfide and the $Mg_{1-x}Ca_xS$ have an orientation in the <100> direction. The

Mikami reference disclose light emitting phosphors such as MgS:Eu and $Mg_{1-x}Ca_xS$ having an orientation in the <100> direction. Okajima discloses that the barrier layers (MgS) are formed from RF-sputtering (see example 1 of Okajima). The Mikami reference discloses that the phosphors are formed by RF-sputtering. Therefore, it would have been obvious to one of ordinary skill in the art to have the MgS and $Mg_{1-x}Ca_xS$ of the Okajima and Japanese reference have an orientation in the <100> direction since the prior art demonstrates that RF-sputtering allows for MgS and $Mg_{1-x}Ca_xS$ to have an orientation in the <100> direction.

Response to Arguments

7. Applicant's arguments with respect to the present claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris, can be reached at (571) 272-1748. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Bruce H Hess/

Primary Examiner, Art Unit 1794